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Virginia Tech Students Prepare to Launch Experiment on NASA Rocket

In addition to their normal studies, a group of students from Virginia Tech, Blacksburg, have been working feverishly to prepare their experiments for launch aboard a NASA rocket to the upper limits of Earth's atmosphere.

Preparing proposals, developing plans, fabricating and wiring components, and hours of meetings with NASA personnel, the undergraduate students in the Department of Aerospace and Ocean Engineering will see their efforts pay off with the launch of a single-stage Orion sounding rocket from NASA Goddard Space Flight Center's Wallops Flight Facility on Virginia's Eastern Shore. The students have been working closely with Wallops engineers and technicians to prepare their experiments for the flight, scheduled for the week of March 14, on the 20-foot tall rocket to more than 40 miles altitude.

The 194-pound Mesospheric Aerosol-Genesis and Composition (MAGIC) experiment housed in the nose cone of the rocket is designed to collect dust particles in the mesospheric range of the atmosphere. This is the first of a series of three launches incorporated into the University's engineering curriculum to provide hands-on mechanical, electrical and aerospace engineering experience.

Part of the NASA Sounding Rocket Operations Contract, (NSROC), Cooperative Education Program, managed by Northrop-Grumman, the launch provides students with the opportunity to take what they learn in the classroom and apply it in a unique hands-on space flight activity. The MAGIC experiment was developed under the direction of personnel from the Naval Research Lab, Washington, D.C.

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“This launch confirms my position that the success or failure of the experiment, while icing on the cake, is really a small part of the educational experience we are trying to offer,” said Wallops Sounding Rocket Program Office Chief, Phil Eberspeaker. “No matter what happens during flight, we have essentially already accomplished the goal of the outreach activity – educating the aerospace leaders of the future and providing the hands-on experience to apply textbook theory to real situations.”

The students’ work included design of a unique, 7-foot nose cone with a deployable tip. The MAGIC sensors extend in sequence when the tip deploys, collect the dust particles, and retract behind a self-sealing ceramic cover before parachuting to the ocean for recovery. They also analyzed weight, apogee and insulation requirements, completed the mechanical engineering design of the payload, and made the initial and final pre-launch presentations to NASA managers.

“The challenge was to integrate the small but extremely sensitive MAGIC experiment into the sounding rocket’s highly complex systems,” said Cathy Herman, Virginia Tech Student Team Leader. “This project has been two years in the making, but worth every minute! The NSROC staff has been fantastic and, for us, this has been a once in a lifetime opportunity.”

The launch will be webcast on:

http://www.wff.nasa.gov/webcast/index.html

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